by far the most important commercially; nevertheless, we could have wished to find brief accounts of such metals as manganese, magnesium, cadmium, palladium, potassium, and sodium.

We have already referred to the excellence of certain drawings, and it is only necessary to add that throughout the volume the illustrations are of very high merit. They are evidently drawn from actual measurement, but it is to be regretted that scales are not given.

The author states in his preface that the object which he had in view was "to supply, within moderate limits, such practical information on general principles, and typical processes, as may not only afford a comprehensive view of the subject, but also enable the reader to study with advantage more elaborate treatises and original memoirs." Certainly this object has been attained; and we think he has done more, in that he has produced a work which not only fully sustains his reputation, but affords fresh evidence of his having done much scientific work of a kind far too rare in this country.

OUR BOOK SHELF

Descendenzlehre und Darwinismus. Von Oscar Schmidt. (Leipzig: Brockhaus, 1873.)

THIS volume of three hundred pages is one of the "International Scientific Library." It is a moderate exposition of the Darwinian theory of Evolution, intended for general readers, and while free from the eccentricities of Hæckel's Anthropogenie, also lacks the brilliancy and power which redeem its faults. Prof. Schmidt while still at Gratz became a convert to "the new philosophy," and in his *Vergleichende Anatomie* (NATURE, vol. v. p. 228) adopted its conclusions as the basis of his teaching. In a paper read before the "British Association" of Germany two years ago, at Wiesbaden, he stated and defended his change of opinion, and now that he is established as professor in Strassburg University, he puts forward this volume as a fuller exposition of his views—"for here one must show one's colours." It is perhaps undesirable for people to attempt arriving at the results of science by such easy roads as popular treatises, and "The Descent of Man" itself is a better interpretation of Darwinism than the expository treatises of Darwinists; but there is undoubtedly a demand for books of this kind, and if they are to be written, it is well that so competent a hand as Prof. Oscar Schmidt's should do it. There are several woodcuts, a good list of references, and the inevitable genealogical trees.

We also note the appearance of an essay attacking the theory of Evolution, by Prof. Wigand, of Marburg; and a reply to it by Prof. Jäger, of Stuttgart. The former, entitled *Darwinismus und die Naturforschung Newton's und Cuvier's*, is a temperate production, written from the point of view of a botanist. The latter is a more lively rejoinder, and appears as *In Sachen Darwin's insbesondere contra Wigand.* P. S.

The Micrographic Dictionary: a Guide to the Examination and Investigation of the Structure and Nature of Microscopic Objects. By J. W. Griffith, M.D., and A. Henfrey. Third Edition, edited by J. W. Griffith and Prof. M. Duncan, assisted by the Rev. M. J. Berkeley and T. Rupert Jones. (London: J. Van Voorst, 1875.)

WE have from time to time chronicled the progress of this work, and have now the satisfaction of announcing its completion. In a work of this kind, which has been upwards of three years in passing through the press, it is inevitable that minute criticism should detect some discrepancies between the various articles, and some passages in the earlier pages which would not have been written in the light of more recent investigations. It is probable, also, that workers in different fields will place a different estimate on the importance of their own department, and will be disposed to grudge the space devoted to others. The student of Cryptogamic Botany has at all events the lion's share, almost every genus in some groups being described. In the present chaotic state of the classification of Cellular Cryptogams, it is probable that a number of the genera and even groups treated of in this work as autonomic will have ultimately to be abandoned. There is, however, so much that is of the greatest value to every microscopist, that we can cordially recommend the work as indispensable to the student. The plates, some of which are new, and others re-drawn, are of themselves of great and permanent value.

Temperature Chart of the United States, showing the Distribution by Isothermal Lines of the Mean Temperature of the Year. Constructed under the direction of Prof. J. Henry, Secretary, Smithsonian Institution, by Charles A. Schott, Assistant U.S. Coast Survey, in October 1872.

THIS temperature chart, which by the way should have been accompanied with some explanatory remarks, has been issued by the Smithsonian Institution. The isothermals are given for every 4° F., beginning with 36° in Minnesota and the northern shores of Lake Superior, and rising successively to 76° in the extreme south of Florida. The lines have evidently been drawn from mean annual temperatures, uncorrected for height, and are therefore designed to show the actual distribution of mean annual temperature over the surface of the United States. This method of representing the distribution of temperature, which has been employed by Petermann and others, is well suited for various purposes for countries, such as Russia, which consist chiefly of extensive rolling plains; but it is not suited for Scotland, Switzerland, and other mountainous regions. In the mountainous parts of Great Britain, for instance, isothermals so drawn, had we the data to do it, would be neither more nor less than contour lines. The fault of the chart consists in not keeping this distinction in view. Thus, in the Rocky Mountains, the isothermal of 44° passes over Denver, the mean temperature of which, on an average of three years, is 51°·0; and in the Alleghany Mountains, Ashville, N.C., lies within the closed isothermal of 48°, but its mean temperature on an average of four years is 54°. In constructing such charts, mountainous regions should be altogether kept clear of the isothermals. For the vast plains of the States the chart is a valuable one, and the tracing of the influence of the lakes, river basins, and more marked contour lines on the course of the isothermals, is very instructive. After a somewhat minute examination of the lines, we have only to note, in way of criticism, that the isothermal of 44° is drawn too far northward in the region of Lake Ontario; the mean temperature of Toronto being 44°·2 and Kingston 42°·8, showing that it should be drawn nearly along the northern shore of that lake.

LETTERS TO THE EDITOR

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.*]

Sub-Wealden Exploration

IT must be with great regret that geologists see the announcement made in NATURE, vol. xi. p. 236, that all the efforts to clear the bore-hole at Netherfield have been unavailing, and that it has to be abandoned. But is it advisable, I would ask, that another should be commenced *on the same spot?* When the

1,000 feet were clear, it seemed desirable to go deeper, as no one could tell how soon the Palæozoic rocks would be reached; but surely if it is to be recommenced *de novo*, it would be better to select another site. We already know from the boring nearly all we care to know—that we are not there on the axis of Palæozoic rocks, but in a basin.

The Kimmeridge clay, which is 240 feet thick at Marquise, becomes thicker in a south-westerly direction to 360 feet near Boulogne, and now we know that it reaches some 660 feet at a point six times the distance in a direction W.N.W., which thickening is continued to its outcrop under St. Alban's Head, though it thins again to the west. The coral rag which occurs in the Boulonnais is here gone through; it sets in again near Weymouth, and since this is followed in the former locality by 385 feet of Oxford clay and Lower Oolitic rocks, we may expect at least 600 feet of them at Netherfield before we reach Palæozoic rocks, which will be almost certainly lower than the coal.

The facts so far ascertained by the boring prove, therefore, as much as we could wish to know, except the age of the Palæozoic rock when met with, if that could be discovered from the small core. They show that the spot is to the south of the axis we are seeking, and the thickening of the Kimmeridge clay would tend to throw that axis some considerable distance to the north.

No such Jurassic beds occur at London, Harwich, or Calais; but the Cretaceous beds directly overlie the Palæozoic. The conditions on one side and on the other are therefore very different. To the north the Palæozoic rocks are spread out not so far from the surface, and on this side only have the coal measures been proved; to the south they are scooped, or dip, into a hollow, in the midst of which is the Netherfield boring, and which hollowing out would have removed all coal-bearing strata, even if originally there.

This verification of what might have been argued from facts already known has been given us by the Sub-Wealden boring; what more can it do? It has proved that our interest is in localities further to the north, as Messrs. Godwin Austen and Prestwich supposed it to be. Doubtless no better locality, *near Brighton*, could have been chosen; but if what is essentially another boring is to be made, why not select a locality from which some fresh information might be obtained? A bore at Folkestone would probably pass through little or none of the Jurassic series; but the best place for a new experiment would be somewhere in the neighbourhood of Goring, which would be on the line both of Mr. Godwin Austen's and Mr. Prestwich's supposed range of coal-fields, and would afford a crucial test whether the Palæozoic rocks are really continuous between London and Frome at an accessible depth; and this is what we most want to know.

If a new boring *is* put down at the same place, it would be well to have a third for some small depth, in order to obtain the dip by a comparison of corresponding beds.

Jan. 25 J. F. BLAKE

The Rhinoceros in New Guinea

I AM quite of your opinion that the occurrence of a rhinoceros in New Guinea is *very seriously* to be doubted (see NATURE, vol. xi. p. 248), but I beg leave to mention a report of a *very large quadruped* in New Guinea, which I got from the Papuans of the south coast of the Geelvinks Bay. When trying to cross the country from there to the south coast, opposite the Aru Islands,—in which I did not succeed, but only saw the sea-shore at a great distance from the height of a mountain chain (I afterwards succeeded in crossing the continent of New Guinea from the Geelvinks Bay more to the north, over to the Maclure Gulf),—and when hunting wild pigs along with the Papuans, they told me, without my questioning them, of a *very large pig*, as they called it, fixing its height on the stem of a tree at more than six feet I could not get any other information from them, except that the beast was very rare, but they were quite precise in their assertion. I promised heaps of glass pearls and knives to him who would bring me something of that large animal, but none did. I cannot suppose, so far as my experience goes, that the Papuans are remarkably prone to lies; notwithstanding I seriously doubted the existence of such a large "pig;" and as the sons of that country are very superstitious, and see ghosts and absurd phenomena everywhere, I may just mention as an example, that when I shot, on the same hunting party, a specimen of *Xanthomelus aureus*, that most brilliant gold-orange Bird of Paradise, they said they could not kill this bird, because it would lighten and thunder when they did. I booked that report as an efflux of their lively imagination, though not without discussing in my diary the possibility and significance of the occurrence of a large quadruped in New Guinea.

It is true this statement does not strongly support Lieut. Smith's *aperçu*, but the one gains a grain by the other; I mean, the probability of the existence of a large quadruped in New Guinea increases a shadow.

The other "fact" mentioned by Mr. Walker (*l.c.*), concerning the skins of a brilliant red Bird of Paradise, which were obtained on the north-east coast, is an interesting *fact* indeed, because it appears to confirm M. d'Albertis' discovery of *Paradisea raggiana* on the south coast. It would be most valuable to compare the skins of the red Bird of Paradise from the north-east and the south coast, or at least those from the first with the coloured figure given by Mr. Elliot in his Monograph of the Paradiseidæ, to become sure of their identity. At all events, if Von Rosenberg maintains (see Noll's "Zoologischer Garten," January 1875), that *P. raggiana* is an "artificial" skin, his assertion is strongly to be repudiated. "Similar frauds" he pretends to have seen in New Guinea, an assertion which is the bolder and the more inconsiderate, as he has not had under his eyes d'Albertis' skins. A. B. MEYER

Dresden, Feb. 1

I WAS no doubt wrong in speaking of the occurrence of the rhinoceros in Papua as a fact without the qualification "if confirmed;" but I wrote in a hurry.

From the details supplied by Mr. Smith, which I annex, I think there is at least a very strong probability that there is a rhinoceros in Papua, and the object of my letter will have been attained if it causes explorers on the north coast of that island to look after it, and at the same time places Mr. Smith's name on record as the discoverer of its indications.

"1. The heap of dung first seen, which was quite fresh (not having apparently been dropped more than half an hour), was so large that it excited Mr. Smith's curiosity, and he called Captain Moresby to see it. Neither of them knew to what animal to assign it. Quantities of dry dung were afterwards seen.

"2. Shortly afterwards, the *Basilisk* being at or near Singapore, Capt. Moresby and Mr. Smith paid a visit to the Rajah of Johore, who had a rhinoceros in confinement. Mr. Smith at once observed and pointed out to Capt. Moresby (who agreed with him) the strong resemblance between the dung of this animal and that they had seen in Papua.

"Seeing there is no animal known in Papua bigger than a pig; seeing also that Mr. Wallace has pointed out the African affinities of many of the animals in the islands he associates with Papua; seeing also that the Sumatran rhinoceros approaches the African in having two horns and no shields or folds in its hide, why should there not be a rhinoceros in Papua approaching still nearer to the African type, or furnishing an additional piece of evidence in favour of Mr. Wallace's hypothesis of a submerged continent connecting New Guinea, &c., with Africa?"

Chester, Feb. 1 ALFRED O. WALKER

Geology and the Arctic Expedition

IN the last number of NATURE, p. 253, it is stated that the appointment of a botanist and zoologist has been recommended by the Royal Society, but it does not appear that anything is being done for geology.

It may be deemed by some an erroneous view of the matter, but I am quite disposed to believe that if the necessary arrangements can be made, geology is more likely to derive important results from this expedition than any other branch of science.

We are continually having additions to the long series of papers on the Glacial Period, but the still more remarkable *warm period* in the extreme north is altogether neglected; no one seems capable of even suggesting a probable explanation. It is quite evident, in the first place, that we want more facts, and there will probably never be a better opportunity of obtaining them than in the course of the new expedition. Carefully conducted researches would probably reveal the existence of a still further extension than has hitherto been suspected of the fossiliferous Miocene beds which have already yielded such valuable results.

Even now, it can hardly be doubted, that just before the advent of the cold period, a magnificent flora, which would require at least as much light and warmth as we now enjoy in England, was flourishing in luxuriance as far north as the 78th parallel. The contemporaneous fauna may now be discovered, and